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1. PURPOSE

This procedure is used to uniformly manage the *life-cycle process* (see def.) for *instrumentation and control (I&C) computer systems* (see def.) and *software applications* (see def.) at the INEEL, thereby establishing and maintaining *configuration management* (CM; see def.) of computer system *baselines* (see def.). The management of I&C computer systems is required to ensure that an appropriate level of rigor is applied to their design and confirm they perform intended functions within established requirements.

2. SCOPE

This procedure directs the life-cycle process and *change control* (see def.) for I&C computer systems and computer components, which are *structures, systems, and components* (*SSC*; see def.), hereafter referred to as computer systems. It provides direction to uniformly manage design-related and life cycle activities, including: requirements development, design, testing, turnover, closeout, and as necessary, cancellation of *computer system change(s)* (see def.). This closed-loop process begins with a proposed new design (required and/or developed) or modification to an existing computer system, and tracks subsequent installations or modifications.

This process requires the creation of a *configuration management plan* (CMP; see def.) for computer systems and components. The CMP is used to control changes to the identified hardware, software, and documentation of a computer system. The steps of this procedure, combined with the approved CMP, form the *Software Quality Assurance Plan* (SQAP; see def.) for the affected SSC. It also provides direction on how to perform a CM review of computer system(s) developed under other procedures to determine if corrective actions are needed. When all or a portion of a computer system is no longer needed, it is retired.

3. RESPONSIBILITIES

Performer	Responsibilities
Computer System Change Control Board (CSCCB) Chairperson	Coordinate CSCCB activities and conduct the review of the computer system change.
CSCCB Member	Review and approve the CMP for the computer system. Review *technical and functional requirements* (T&FR; see def.) and designs in areas of assigned expertise.

Performer	Responsibilities
Configuration Management Subject Matter Expert (CM SME)	Assist the system engineer and engineering manager during various stages of the engineering change process to ensure that configuration is maintained.
Designer	Manage the design functions in order to produce high-quality technical products, and perform related tasks assigned or delegated by the system engineer.
Facility Manager (FM)	Concur with the design, and give approval to proceed with the installation of a computer system change. Manage assigned company program, project, or facility (such as nuclear facility and building). This function may be transferred during the life of an engineering change, computer system change, or activity when the manager with long-term responsibility for the SSC is not immediately identified.
Operations Manager (Shift supervisors, facility supervisors, operations technical leads, and tenant managers with these responsibilities)	Accept turnover of the applicable SSC to Operations. Accept as-built essential documents as complete prior to accepting turnover. Manage the conduct of business pertaining to hardware, related facilities, or systems that produce products or services such as experimental test facilities, nuclear reactors, or waste processing and storage facilities.
Site Area Engineering Manager (SAEM)	Direct, lead, and manage Operations Engineering (what and when) at assigned Site areas. Oversee all engineering and modification activities in assigned areas, including changes to new and existing CM SSCs, to ensure that activities are performed per this procedure. Identify computer systems within assigned areas. Assign system engineers to each computer system by evaluating system support needs and personnel resources and capabilities. Ensure that the assigned System Engineer (SE) has all the necessary technical training for the system to which he or she is assigned. Recommend and manage modifications for multiple large projects, small projects, small facility modifications, and other tasks from initiation to completion.

Performer	Responsibilities
System Engineer (SE)	**NOTE:** *The SE may delegate some or all of his/her functional roles as defined in this procedure to a cognizant engineer or project engineer.* Determine whether the computer system requires configuration control per the criteria in Appendix A. Develop a CMP per the instructions given in Appendix B. Establish a baseline for the computer system and ensure that all *configuration or configured items* (CIs; see def.) become part of at least one baseline, either when the CIs are ready for release, or when they become the basis for another phase of the project. Monitor and direct the computer system engineering tasks. Identify additional individual(s), if any, to join the CSCCB. Perform CSCCB chairperson functions if the CMP does not document a specific individual to perform this function.
Tester	Test the applicable hardware and software related to the computer system change.

4. INSTRUCTIONS

4.1 Performing the Life-Cycle Process

4.1.1 Site Area Engineering Manager (SAEM): Authorize responsible SEs to assign designers and testers in developing designs and performing tests for the organization.

4.1.2 SE: Respond to the current state of the computer system, as specified in the following table:

Current State	Response
Computer system has not been managed according to this procedure, or a previous version thereof	Review the system for compliance by completing Section 4.14, then return to this table
New or modified computer system or software application	Perform change screening per Section 4.2. If a Computer System Change Form (CSCF) is required, return to this table.

Current State	Response
Change screening determines the CSCF process is required	Perform change planning per Section 4.3, then return to this table.
Change planning determines change is minor	Complete a minor change per Section 4.4.
Change planning determines change is major	Complete a major change per Sections 4.5 through 4.11, in sequence
Inappropriate to continue computer system modification	Cancel the CSCF per Section 4.12
Computer System, or portion thereof, no longer needed	Retire CIs no longer needed per Section 4.13

4.2 Change Screening

NOTE: *The purpose of this screening is to determine whether the change can be made per an approved work process only, or if the Computer System Change Form (CSCF; Form 562.15) process is necessary. Appendix C contains a flow diagram of the screening process.*

4.2.1 SAEM: Assign a SE to the computer system.

4.2.2 SE: Define the scope of the change.

4.2.2.1 If the change includes modifying SSCs that are not computer systems, also screen the change per MCP-2811, "Design Control," and complete an Engineering Change Form (ECF) when required.

4.2.2.2 Define the overall requirements and business justification for the change.

4.2.3 SE: Determine the appropriate safety category of the change per MCP-540, "Documenting the Safety Category of Structures, Systems, and Components."

4.2.4 SE: Evaluate the change for CM applicability using the criteria in Appendix A. If not applicable, the change is to an *excluded item* (see def.).

4.2.5 SE: Evaluate whether the change requires a new computer system or whether it can be incorporated into an existing system.

4.2.6 SE: When the change requires a new computer system:

4.2.6.1 If the change is to an excluded item, perform the change per an approved work authorization process and the following as applicable:

4.2.6.1.1 MCP-1185, "Acquisition of Materials and Services," (applies if a computer system or software application will be procured).

4.2.6.1.2 Update all affected documents.

4.2.6.1.3 Make controlled document changes per MCP-135, "Creating, Modifying, and Approving Procedures and Other DMCS-Controlled Documents."

4.2.6.2 If the change applies to CM, perform the change using the CSCF process, and select a core CSCCB as follows:

NOTE: *The supervisor or manager determines whether the assigned CSCCB member can fulfill the responsibilities of performing design reviews for his or her organization.*

4.2.6.2.1 Ensure a representative is assigned from the facility manager's organization.

4.2.6.2.2 When the computer system includes Safety Significant (SS), Safety Class (SC), and Low Safety Consequence (LSC) changes, ensure a representative is assigned from the Quality organization.

4.2.6.2.3 When the computer system is classified, ensure that the Information Systems Security Officer (ISSO) is assigned to the CSCCB.

4.2.6.2.4 Identify additional qualified individual(s), if any, to join the CSCCB who review and approve, or disapprove the computer system change and the associated designs.

4.2.7 SE: When the change will be incorporated into an existing computer system and any of the following apply, perform the change per the CMP and an approved work authorization process:

A. The change is a maintenance task involving *functionally equivalent* (see def.) replacement parts as defined in an approved CMP.

B. The change is an operational or system parameter change documented in an approved CMP.

C. The change is to an excluded item documented in an approved CMP.

4.2.7.1 Update all affected documents.

4.2.7.2 Make controlled document changes per MCP-135, "Creating, Modifying, and Approving Procedures and Other DMCS-Controlled Documents."

4.2.7.3 Otherwise, perform the change through the CSCF process.

4.3 Change Planning

NOTE: *Appendix D contains a flow diagram of the CSCF process.*

4.3.1 SE: Complete the initiation portion of Form 562.15, "Computer System Change Form (CSCF)," per form instructions.

4.3.2 SE: If a *significant change* (see def.) is proposed to a computer system that does not have a current *baseline* (see def.), record the baseline information in a retrievable format and reference and/or attach.

NOTE: *Additional approvals of the graded approach may be applied, as defined by the computer system CMP, SE, or SAEM.*

4.3.3 SE: Evaluate the change for graded approach as follows:

4.3.3.1 Determine if the change is *minor* (see def.) or *major* (see def.) and get a concurrence signature as follows:

4.3.3.1.1 If no specific CSCCB chairperson is assigned, get CSCCB chairperson or SE concurrence.

4.3.3.1.2 If the changes are safety Category SC and SS, get SAEM concurrence.

4.3.4 SE: If the change is *security-related* (see def.), send a copy of the prepared CSCF to the ISSO for review.

4.3.5 SE: Identify at least one CSCCB member besides the SE to approve test results. For major changes, select a CSCCB member who will not also be a designer for this change.

4.3.6 SE: If change is determined to be major and:

4.3.6.1 The USQ screen is positive, contact Safety Analysis management to provide a CSCCB member.

4.3.6.2 The 10 CFR 72 screen is positive, contact Independent Spent Fuel Storage Installation management to provide a CSCCB member.

4.3.6.3 An environmental checklist is required, contact Environmental management to provide a CSCCB member.

4.4 Minor Change

4.4.1 SE: Assign the engineer(s) to prepare the design for the computer system change.

4.4.2 SE: Ensure that changes to all controlled documents and drawings are initiated per MCP-135, "Creating, Modifying, and Approving Procedures and Other DMCS-Controlled Documents," and MCP-2377, "Development, Assessment, and Maintenance of Drawings," respectively.

NOTE: *T&FRs for a minor change are documented on the CSCF form.*

4.4.3 Designer: Develop the design to meet the T&FRs, performing verifications as applicable throughout the design process to ensure components of the design meet individual requirements.

4.4.3.1 Compile the data as required to support the completion of activities required in the following procedures:

A. MCP-1185, "Acquisition of Materials and Services," applies if a computer system or software application will be procured

B. MCP-2795, "Master Equipment List"

C. MCP-3574, "Management of Data in the Configuration Management Database."

NOTE: *It is allowable to document the test procedure steps in the CSCF testing requirements block.*

4.4.4 Designer: Prepare a qualification test procedure (QTP) per the requirements in Appendix E to confirm that the design meets the T&FRs without introducing undesirable functions.

4.4.5 SE: Assign individual(s) to test the computer system changes in accordance with an approved QTP.

4.4.6 Tester(s): Test the applicable hardware and software per the approved qualification test.

4.4.6.1 If the hardware and software pass the test, sign the qualification test as complete.

4.4.6.2 If the hardware and software do not pass the test, notify the SE for corrective action.

4.4.7 SE or Designer: Ensure that all appropriate qualification testing activities specified on the QTP are completed.

4.4.7.1 Review the test results to ensure the designed change conforms to requirements and has not resulted in any unforeseen impacts in other parts of the system.

4.4.7.1.1 Take the appropriate actions to correct nonconforming items found by the test.

4.4.7.1.2 If the system failed the test, determine whether the test or the computer system requires correction.

4.4.7.1.2.1 If the qualification test procedure is in error, make the appropriate changes to the test and resubmit it to the original approvers for acceptance and retest.

4.4.7.1.2.2 If the computer system is in error, make the appropriate changes to the system and retest.

4.4.8 SE or CSCCB Chairperson: Document satisfactory qualification test completion by signing the CSCF.

4.4.9 Designated CSCCB Members: Approve the qualification test results, or recommend retesting when results are not acceptable.

4.4.10 SE: Ensure that the training designated on the CSCF is completed.

4.4.11 SE: Obtain the verbal authorization of the Operations Manager to install the *production system* (see def.), and signify that authorization by signing the CSCF.

4.4.12 SE: Assign individual(s) to install the computer system change.

4.4.12.1 Installer: Install changes to production system using an approved work authorization process.

4.4.13 SE: Update the configured item list and baseline documents as defined in the CMP.

4.4.14 SE: Complete final records management activities per MCP-557, "Managing Records."

4.4.14.1 Provide the *computer system change package* (see def.) to document control as a quality record and final documents for incorporation into the Document Management Control System (DMCS).

4.4.14.2 Update the status of the CSCF in EDMS (http://edms) to show that the CSCF is complete.

NOTE: *For the Specific Manufacturing Capability (SMC) organization, EDMS referencing in this procedure refers to the SMC document control system.*

4.5 Technical and Functional Requirements

NOTE: *The SE may assign a technical performer to develop the T&FR under his or her direction.*

4.5.1 SE: Develop the T&FR document using Appendix F as a format guide; omit the sections that are not applicable.

4.5.2 SE: Ensure the following activities are completed, when applicable, to adequately define new or modified SSC requirements and criteria:

4.5.2.1 Review of LST-95, "Reference Design Codes and Standards," for applicable design codes and standards

4.5.2.2 Review of LST-99, "Facility Hazards Identification and Control Information List," for applicable hazard identification and control requirements

4.5.2.3 A general review of DOE ID Architectural Engineering Standards, as appropriate.

4.5.3 SE: Use the following terminology when writing the T&FR document:

A. The word "shall" to denote a requirement.

B. The phrase "shall consider" when an objective assessment is to be performed in the subsequent design process to determine to what extent the specified consideration is to be incorporated, and document the basis for incorporation or rejection of the consideration in the subsequent design process.

4.5.4 SE: If T&FRs are not attached or included with the CSCF, control them per MCP-135, "Creating, Modifying, and Approving Procedures and Other DMCS-Controlled Documents."

NOTE: *Comments may be documented on Form 412.13, "Review Comments and Resolutions"; an e-mail; letter; per direction of the project; or other retrievable, auditable format.*

4.5.5 SE: Submit the T&FR to the CSCCB for review and comment.

4.5.6 CSCCB Members: If satisfied that the proposed T&FR is adequate, indicate concurrence by signing the CSCF; if not, work with the SE and appropriate management to resolve differences before signing the CSCF.

4.6 Design Output

4.6.1 SE: Manage document identification.

4.6.1.1 List the affected documents, databases, training, and software in the Documents section of the CSCF as they are developed or identified.

4.6.1.2 Evaluate and identify activities and changes to documents, drawings, and software that must be completed before turnover by checking the appropriate boxes in the Document Section of the CSCF. The minimum criteria are:

A. Drawings or other configuration controlling documents, or equivalent electronic media, that are essential to safe facility operations in accordance with the criteria in STD-107, "Configuration Management Program"

B. Maintenance activities that must be completed and closed out

C. Qualification test procedures (QTP) or system operational checks (and related issues) that must be performed and closed out

D. Required training that must be completed.

4.6.1.3 Ensure that changes to all DMCS-controlled documents and drawings are initiated per governing procedures MCP-135, "Creating, Modifying, and Approving Procedures and Other DMCS-Controlled Documents," and MCP-2377, "Development, Assessment, and Maintenance of Drawings," respectively.

4.6.2 SE: Assign engineer(s) to prepare the design for the computer system change.

4.6.3 SE or Designer: Develop a CMP for new systems using the instructions provided in Appendix B.

4.6.4 Designer: Develop the design to meet the T&FRs, documenting verifications with the computer system change as applicable throughout the design process to ensure components of the design meet individual requirements.

4.6.4.1 Compile data as required to support the completion of activities required in the following procedures:

A. MCP-1185, "Acquisition of Materials and Services," (applies if a computer system or software application will be procured)

B. MCP-2795, "Master Equipment List"

C. MCP-3574, "Management of Data in the Configuration Management Database."

4.6.5 Designer: Develop a qualification test procedure (QTP).

4.6.5.1 If the testing can be performed on computer system development resources, prepare a qualification test per the requirements of Appendix F to confirm the design meets the T&FRs without introducing undesirable functions.

4.6.5.2 If not, prepare the QTP in accordance with MCP-3056, "Test Control."

4.7 Design Review and Approval

4.7.1 SE: In preparation for the design review and discussion with the designer or CSCCB chairperson, consider using:

A. *kickoff meeting* (see def.)

B. *design review meetings* (see def.)

C. *formal transmittals* (see def.).

4.7.2 Designer and CSCCB Chairperson: Assemble a design review package that includes as a minimum:

A. approved CSCF and T&FR

B. drafts of design output documents (pseudo code, screen dumps, module design, communication layout, etc.)

C. drafts of related support documents, databases, and software (procedures, training plans, turnover criteria, etc.)

D. QTP.

4.7.2.1 Identify the review package as "FOR REVIEW ONLY."

4.7.3 SE or CSCCB Chairperson: Transmit the design review package to the CSCCB members for review.

4.7.4 CSCCB Members: Review and assess the design review package for, as a minimum, applicability, correctness, necessity, sufficiency, completeness, clarity, and accuracy as they apply to:

A. USQ and environmental screens and evaluations

B. selection and incorporation of design inputs

C. validation of inputs based on assumptions and identification of any further controls that are to be retained beyond the design phase

D. appropriate design methods and computer programs, when applicable

E. compliance with applicable codes, standards, and facility- or system-specific requirements

F. adequacy of design assumptions, design methods, design verification, materials, parts, equipment, and processes

G. constructability, operability, maintainability, and turnover criteria.

4.7.5 CSCCB Members: Determine if the requirement has been satisfied by the design in your assigned area of expertise for each specific requirement in the T&FR.

NOTE: *Comments may be documented on Form 412.13, "Review Comments and Resolutions," an e-mail; letter; per direction of the project; or other retrievable, auditable format.*

4.7.5.1 If the T&FR has been satisfied, indicate "DESIGN MEETS T&FR," to the CSCCB chairperson; if not, document comments and send to the CSCCB chairperson.

4.7.6 SE or CSCCB Chairperson: Conduct and document design review meetings as appropriate to the level of the change being made, which may include routing, walkthrough, or formal review of the design review package.

4.7.7 SE or Designer: Evaluate comments and resolve identified design review package deficiencies.

4.7.7.1 If the resolution will change the T&FR that was approved for the final design, perform T&FR development and/or refinement relative to the change that is required to satisfy the identified deficiency.

4.7.7.2 If the resolution will change the design, complete design development relative to the change that is required to satisfy the identified deficiency.

4.7.7.3 Use management input as necessary to resolve CSCCB comments.

4.7.7.4 After all review comments have been addressed or incorporated, obtain concurrence from all CSCCB members for the final design review package.

NOTE: *CSCCB approval signatures also signify final review and approval of the T&FR, including changes to previously approved requirements and the design documents.*

4.7.8 CSCCB Members: Verify by signature on the CSCF that the:

A. design conforms with the T&FR

B. computer system change is correctly translated into specifications, drawings, procedures, and instructions

C. design has been adequately verified or will be adequately verified by completion of an approved qualification test.

4.7.9 SE: Get a review of the previous USQ screen(s) or evaluation(s) by a qualified screener. Sign and date the applicable block after the appropriate action is taken.

4.7.9.1 Indicate whether a previous screen was performed.

4.7.9.2 If a screen was performed, request a qualified USQ screener to update the previous screen and include it with the design-related documents.

4.7.9.3 Confirm existing USQ evaluations or initiate new USQ evaluations as applicable.

4.7.10 SE: Approve the design as complete.

4.7.11 SAEM: For safety category SC and SS designs, approve the final design.

4.7.12 Facility Manager (FM): Provide approval to proceed by signing the CSCF.

4.8 Qualification Testing (Validation)

NOTE: *Facility specific or CMP requirements may define specific training or individuals that are allowed to perform qualification tests.*

4.8.1 SE: Assign individual(s) to test the computer system changes in accordance with an approved QTP.

4.8.2 SE: Monitor testing to ensure that tests are performed per the approved test procedure.

4.8.2.1 Ensure that the qualification test records contain the test information.

4.8.2.2 When performing a test under MCP-3056, "Test Control," document changes to the test procedure per MCP-135, "Creating, Modifying, and Approving Procedures and Other DMCS-Controlled Documents."

4.8.3 Tester(s): Test the applicable hardware and software per the approved qualification test.

4.8.3.1 If the hardware and software pass the test, sign the qualification test as complete.

4.8.3.2 If the hardware and software do not pass the test, notify the SE for corrective action.

4.8.3.3 If the test is being performed on a production system and the corrective action cannot be taken in a timely manner, return the system to its pretest state.

4.8.4 SE or Designer: Ensure that all qualification testing activities specified on the CSCF are complete, as appropriate.

4.8.4.1 Review the test results to ensure the designed change conforms to requirements and has not resulted in any unforeseen impacts in other parts of the system.

4.8.4.1.1 Take the appropriate actions to correct nonconforming items found by the test.

4.8.4.1.2 If the system failed the test, determine whether the qualification test or the computer system requires correction.

4.8.4.1.2.1 If the qualification test is in error, make the appropriate changes to the test and resubmit it to the original approvers for acceptance, and retest.

4.8.4.1.2.2 If the computer system is in error, make the appropriate changes to the system, and retest.

4.8.5 SE or CSCCB Chairperson: Document qualification test completion by signing the CSCF.

4.8.6 Designated CSCCB Members: Approve the qualification test results, or recommend retesting when results are not acceptable.

4.8.7 SE: Ensure that all appropriate performance validation testing activities specified on the CSCF are complete.

4.8.8 SE: After the design is done and qualification testing is complete on the development resources, sign the CSCF to authorize installation to the production system.

4.9 Operations Partial Turnover

NOTE: *Operations partial turnover is performed when all of the physical work associated with a CSCF cannot be completed prior to the time when some portion of the CIs affected by the CSCF is required to be operational.*

4.9.1 SE: Initiate an operations partial turnover as follows:

4.9.1.1 Define CIs and boundaries to be included in the turnover.

4.9.1.2 Coordinate with operations the update of documents and drawings, and the completion of training that will be necessary for operation.

4.9.1.3 When the CIs are ready for turnover, sign the CSCF.

4.9.2 Operations Manager: Accept turnover of affected computer system based on completeness of the established turnover requirements by signing the CSCF.

4.9.3 SE: Notify the individuals or organizations, as directed by the CMP, that will be affected by an approved change when the CI is to be released to the production computer system.

4.9.4 SE: Assign individual(s) to install the computer system change.

4.9.4.1 Installer: Install changes to production system using an approved work authorization process.

4.10 Operations Turnover

4.10.1 SE: Initiate an operations turnover as follows:

4.10.1.1 Ensure that all turnover requirements as designated on the CSCF have been satisfied and that the completion references have been documented on the original CSCF.

4.10.1.2 Sign the CSCF when the CIs are ready for turnover.

4.10.2 Operations Manager: Accept turnover of affected computer system based on completeness of the established turnover requirements by signing the CSCF.

4.10.3 SE: Submit, as a minimum, a copy of the computer system change package, including the T&FR, if not already submitted, to the appropriate document control center for status tracking.

4.10.4 SE: Notify the individuals or organizations, as directed by the CMP, that will be affected by an approved change when the CI is to be released to the production computer system.

4.10.5 SE: Assign individual(s) to install the computer system change.

4.10.5.1 Installer: Install changes to production system using an approved work authorization process.

4.10.6 SE: Ensure accountable property transfers are completed as appropriate per MCP-2470, "Property Transfers."

4.11 Computer System Change Closeout

NOTE: *Complete closeout within 60 days of operations turnover.*

4.11.1 SE: Update the configured item list and baseline documents as defined in the CMP.

4.11.1.1 Base the finalization or update on the final T&FR and design output documents.

4.11.1.2 Include applicable information from related documents.

4.11.1.3 Turn over the computer system change package to the appropriate document control center.

4.11.2 CM SME: Sign the CSCF when documentation requirements are complete.

4.11.3 SE: Complete final records management activities per MCP-557, "Managing Records."

4.11.3.1 Provide the *computer system change packages* (see def.) to document control as a quality record and final documents for incorporation into the Document Management Control System (DMCS).

4.11.4 Update the status of the CSCF in EDMS (http://edms) to indicate that the CSCF is complete.

NOTE: *For the Specific Manufacturing Capability (SMC) organization, EDMS referencing in this procedure refers to the SMC document control system.*

4.11.5 SE: For new computer systems, contact the Enterprise Architecture Team (members are identified at http://juneau:81/earch/start.html) and provide information required to register the system on the Enterprise Architecture (EA) database.

4.12 Computer System Change Cancellation

4.12.1 SE: If it is inappropriate to continue the modification proposed in the CSCF, cancel the computer system change.

4.12.1.1 Verify that the following associated document changes have been canceled or returned to the pretask condition:

A. Work Order(s)

B. affected drawings

C. other baseline documents associated with the CSCF.

4.12.1.2 Update the status of the CSCF on the DMCS homepage (http://edms) to indicate that the CSCF is cancelled.

NOTE: *For the Specific Manufacturing Capability (SMC) organization, EDMS referencing in this procedure refers to the SMC document control system.*

4.12.1.3 Submit the original computer system change package as a quality record, with the reason for the cancellation, to the appropriate document control center for records storage.

4.12.2 FM: For major changes when final approval of the design output has been given, then approval of CSCF cancellation is also required..

4.13 Retirement

4.13.1 SE: Submit a CSCF to retire CI(s) when no longer needed.

4.13.1.1 Submit a CSCF to document retirement, following normal change screening and planning.

4.13.1.2 If all the CIs associated with a CMP are to be retired, cancel the affected CMP per MCP-135, "Creating, Modifying, and Approving Procedures and Other DMCS-Controlled Documents."

4.13.2 SE: Ensure unused property is appropriately dispositioned per either MCP-560, "Redistribution of PC Assets at the INEEL," or MCP-2478, "Disposing of Nonproliferation Sensitive Government Property."

4.13.3 SE: If a computer system is retired, contact the Enterprise Architecture Team (members are identified at http://juneau:81/earch/start.html) to have them remove the system from the EA database.

4.14 Computer Systems Not Managed Using this Procedure

4.14.1 SE: For computer systems requiring a change or when otherwise directed by management, perform the following steps:

4.14.1.1 Develop CMP for system per Appendix B.

4.14.1.2 Assign individuals to perform an independent review of the documentation for the existing system.

4.14.1.3 Develop criteria for performing this review based on current procedural requirements and document with an e-mail, letter, or per direction of the SAEM.

4.14.1.3.1 Obtain SAEM concurrence with the criteria.

4.14.1.3.2 Authorize independent reviewers to proceed with their review.

4.14.1.4 If any findings result from the review, document the findings according to MCP-598, "Corrective Action System."

4.14.1.5 For computer systems, contact the Enterprise Architecture Team (http://juneau:81/earch/start.html) and provide information required to register the system on the EA database.

5. RECORDS

Records Description	Uniform File Code	Disposition Authority	Retention Period
Form 562.15, "Computer System Change Form"	8208	A17-30-c-1	Until dismantlement or disposal of facility, equipment, systems or process; or when superseded or obsolete, whichever is earlier.
CSCF (Hard Copy of Electronic Application for Form 562.15)	8208	A17-30-c-1	Until dismantlement or disposal of facility, equipment, systems or process; or when superseded or obsolete, whichever is earlier.
Technical and Functional Requirements	7304	A17-30-c-1	Until dismantlement or disposal of facility, equipment, systems or process; or when superseded or obsolete, whichever is earlier.
Configuration Management Plan	7304	A17-30-c-1	Until dismantlement or disposal of facility, equipment, systems or process; or when superseded or obsolete, whichever is earlier.

6. DEFINITIONS

NOTE: *Refer to LST-199, "Definitions," for terms not defined in the following list.*

access. The capability to retrieve and modify the CIs and system parameters of a computer system. This includes access through physical contact (hardware CI), through normal operator interfaces, and through remote interfaces connected to the computer system via modem and/or network.

auditable safety analysis (ASA). A contractor-approved report that documents the adequacy of safety analyses and establishes the safety envelope for (1) certain low-hazard facilities, and (2) certain nonfacility nuclear operations that do not require a nuclear *Safety Analysis Report* (SAR; see def.).

baseline. The documentation that defines the design, operations, and maintenance requirements or depicts the system configuration, such as:

A. A specification or product that has been formally reviewed and agreed upon, which thereafter serves as the basis for further development, and which can be changed only through formal change control procedures.

B. A document or set of documents formally designated and fixed at a specific time during the life cycle of a *configured item* (see def.). Baselines, plus approved changes from those baselines, constitute the current configuration identification.

C. This can include, but is not limited to T&FR, SDD, SAR, ASA, Technical Safety Requirements (TSR), specifications, drawings and other configuration records as identified in the CMP.

change control. A process that ensures all changes are properly identified, reviewed, approved, installed, and documented.

computer system change. Modification or establishment of a configuration-managed structure, system, or component, including the related software, documentation, and database information used to describe the change. A computer system change may also include activities associated with the design of new or modified structures, systems, or components.

computer system change package. The CSCF, together with attached technical inputs, review records, environmental checklists, support documents, USQ screens and evaluations, Task Baseline Agreements, and supporting documentation.

Configuration Management Plan (CMP). The document that defines how configuration management will be implemented for a particular computer system. It documents the methods used for controlling the development and changes to each individual system and addresses any unique configuration problems or needs associated with each system.

configuration or configured item (CI). Hardware, software, or both designated for configuration management and treated as a single entity in the configuration management process. Complexity of the item and the risk of changing is considered when deciding the boundaries of a CI. A CI might be as small as a line of code or as large as an entire computer system.

design review meeting. An interactive team discussion (synergy) of issues conducted by the independent design reviewers intended to increase the depth of the design review. Design review meetings are an essential part of large, complex design efforts that involve multiple disciplines or multiple facilities.

development resources. Computer system hardware that is physically or virtually separated from the production system. To be virtually separated, a method of identification is required to differentiate between the production and development software, and any changes or testing of the software can be performed without interfering with the operation of the production system.

excluded item. An item not covered by system parameters or *operational parameters* (see def.), and not subject to CM requirements, such as a computer keyboard.

functional requirements. Requirements that specify what the design solution must do.

formal transmittal. A company-approved format for documenting some or all computer system change-related correspondence such as review requests, review records, design review meeting requests, and meeting minutes.

functionally equivalent. Functionally the same part as the original item as determined by the SE and specifically defined in an approved CMP.

instrumentation and control (I&C) computer system. For the purposes of this procedure, any type of electronic hardware that utilizes a microprocessor for the purposes of monitoring or controlling operations in nuclear and non-nuclear facilities. This can include, but is not limited to data acquisition computers, distributed control systems , and programmable logic controllers.

kickoff meeting. An interactive team meeting used as a method for introducing the proposed computer system change and establishing the review responsibilities of each member of the CSCCB.

life-cycle process. The process for developing requirements, design, testing, turnover, closeout, and as necessary, cancellation. This process includes new stand-alone applications, or modifications to existing applications.

major change. A significant change to the computer system design where none of the conditions for a *minor change* (see def.) apply.

minor change. A proposed change to a computer system design that is not a *significant change* (see def), and both of the following conditions apply:

A. The technical and functional requirements recorded on the CSCF form are deemed adequate for preparing a design change.

B. Testing can be performed on computer system *development resources* (see def.).

operational parameter. Parameters that may be changed by operators during the routine control of the plant.

production system. The final target system where baseline configuration will be used for the purposes of monitoring and controlling operations.

Safety Analysis Report (SAR). A report that documents the adequacy of safety analyses for each nuclear facility or nonfacility nuclear operation to ensure that the facility or nonfacility nuclear operation can be constructed, operated, maintained, shut down, decontaminated, and decommissioned safely and in compliance with applicable laws and regulations.

security-related. Software that is directly involved in the protection of data or access to the computer system (see MCP-292, "Unclassified Computer Security Program," and MCP-307, "Classified Automated Information System Security").

significant change. Significance to be judged based on consideration of pertinent issues that may affect the baseline documentation or indicate consequences of failure, such as:

A. compliance with laws, regulations, permits, or standards

B. proper conduct of mission-critical operations

C. creation of unsafe conditions that could result in personal injury, death, or damage to the environment

D. creating conditions that could result in significant nonessential costs to the company

E. impact on form, fit, or function

F. the number and type of drawings or document sheets needing revision

G. the number and type of operations, organizations, or personnel impacted.

software application. computer system software.

system parameter. Items requiring routine change as identified in the CMP, which do not require a CSCF to make the change.

technical and functional requirements. Design input used to (1) identify the purpose and need for a new SSC or a modification to an existing SSC, (2) provide a general description of objectives, (3) describe *functional requirements* (see def.) with associated bases, (4) identify performance requirements, and (5) establish the applicable design criteria at the level of detail necessary to proceed with the design.

technical safety requirements (TSR). Requirements that define the conditions, safe boundaries, and the management or administrative controls necessary to ensure the safe operation of a nuclear entity and reduce the potential risk to the public and nuclear entity workers from uncontrolled releases of radioactive materials or from radiation exposures due to inadvertent criticality. A TSR consists of safety limits, operating limits, surveillance requirements, administrative controls, use and application instructions, and the basis thereof. TSRs were formerly known as operational safety requirements for nonreactor nuclear facilities, and technical specifications for reactor facilities.

7. REFERENCES

10 CFR Part 72, January 1, 1997, "Licensing Requirements for the Independent Storage of Spent Nuclear Fuel and High-Level Radioactive Waste," Section 72.48, Changes, Tests, and Experiments

DOE Hoisting and Rigging Standard (DOE-STD-1090-99)

DOE-ID Architectural-Engineering Standards

GDE-7066, "Software Development Resources"

LST-95, "Reference Design Codes and Standards"

LST-99, "Facility Hazards Identification and Control Information List"

LST-199, "Definitions"

MCP-135, "Creating, Modifying, and Approving Procedures and Other DMCS-Controlled Documents"

MCP-292, "Unclassified Computer Security Program"

MCP-307, "Classified Automated Information System Security"

MCP-538, "Control of Nonconforming Items"

MCP-540, "Documenting the Safety Category of Structures, Systems, and Components"

MCP-557, "Managing Records"

MCP-560, "Redistribution of PC Assets at the INEEL"

MCP-598, "Corrective Action System"MCP-1185, "Acquisition of Materials and Services"

MCP-2377, "Development, Assessment, and Maintenance of Drawings"

MCP-2446, "Controlling Lists of Nuclear Facilities and Nuclear Facility Managers"

MCP-2449, "Nuclear Safety Analysis"

MCP-2450, "Technical Safety Requirements"

MCP-2470, "Property Transfers"

MCP-2478, "Disposing of Nonproliferation Sensitive Government Property"

MCP-2795, "Master Equipment List"

MCP-2811, "Design Control"

MCP-3056, "Test Control"

MCP-3567, "Authorization Agreement with Authorization Basis List"

MCP-3572, "Design Description Documents"

MCP-3574, "Management of Data in the Configuration Management Database"

PRD-183, 15A "INEEL Radiological Control Manual"

PRD-5072, 2.2 "Personnel Training and Qualification"

PRD-5074, 3.1 "Design Control"

PRD-5082, 11.1 "Test Control"

PRD-5092, 19.1 "Software Quality Assurance"

STD-107, "Configuration Management Program"

8. APPENDIXES

Appendix A, Criteria for Identifying Configuration controlled SSCs

Appendix B, Computer Management Plan (CMP) Instructions

Appendix C, Change Screening

Appendix D, CSCF Process

Appendix E, Qualification Test Procedure

Appendix F, Technical and Functional Requirements (T&FR) Outline

Appendix G, Procedure Basis

Appendix A

Criteria for Identifying Configuration Controlled SSCs

The following criteria are used to identify those SSCs and related documentation required to be configuration managed. The Safety Categories (Safety Class (SC), Safety Significant (SS), Low Safety Consequence (LSC), and Consumer Grade (CG)) are determined by MCP-540 criteria.

A. The SSC is SC.

B. The SSC is SS.

C. The SSC is LSC.

D. The SSC is CG, and any of the following is true:

- Is not intended to perform an Authorization Basis safety function, but, its failure or missing and/or inaccurate documentation could directly impair the capability of SC or SS item(s)
- The function of the SSC is a requirement of an environmental or other regulatory permit
- The SSC function is monitoring, surveillance, or data acquisition that are relied upon for regulatory requirement surveillance or reporting
- Its function is to provide protection against regulatory noncompliance
- Permanently installed in-service fire protection or emergency notification and life safety systems and equipment, and documentation of the SSC's design requirements and/or physical configuration will provide a lasting and necessary margin of safety or reliability
- Its function is a requirement of an approved emergency action plan or procedure, and documentation of the SSC's design requirements and/or physical configuration will provide a lasting and necessary margin of safety or reliability
- Its function is to contain or isolate hazardous energy or substances, and documentation of the SSC's design requirements and/or physical configuration will provide a lasting and necessary margin of safety or reliability because alternate hazard identification and mitigation controls are not practical
- Permanently installed, its function is a requirement of the INEEL Radiological Control Manual (PRD-183), and documentation of the SSC's design requirements and/or physical configuration will provide a lasting and necessary margin of safety or reliability

- Performs a function that is an implied or specified requirement of the DOE Hoisting and Rigging Standard (DOE-STD-1090-99), and documentation of the SSC's design requirements and/or physical configuration will provide a lasting and necessary margin of safety or reliability

- Facility management determines that its documentation, physical configuration, and requirements must be consistent and controlled (configuration managed) for surety of safe operations, safe maintenance, or mission accomplishment.

E. The SSC is identified in A through D above and is in a leased facility or is a mobile unit where the INEEL has responsibility for an engineering change.

Appendix B

Configuration Management Plan (CMP) Instructions

NOTE 1: *Instructions in this appendix represent the fundamental activities for preparing a CMP. Additional rigor may be mandated by the SAEM or added at the discretion of the system engineer.*

NOTE 2: *This document, combined with the process steps defined in the procedure, form the* Software Quality Assurance Plan *(SQAP; see def.) for development and modifications to the associated computer system.*

1. Refer to GDE-7066, "Software Development Resources," for additional help in preparing CMPs.

2. Prepare the CMP using the format and instructions below.

   a. Clearly identify the boundaries of the computer system to which the CMP applies.

   b. Provide a CI list in the CMP.

      (1) Uniquely identify the CIs either by name or by definition and all CI versions and revisions.

      (2) Identify the CIs that meet the criteria in Appendix A, or requiring configuration management.

      (3) Identify *security-related* (see def.) CIs.

      (4) Establish the safety category of each CI per MCP-540, "Documenting the Safety Category of Structures, Systems, and Components."

3. Identify CIs that do not require a CSCF to be changed in the CMP. These are items that do not require configuration management and do need to be changed in routine operation of the system (i.e., user and system administration files, *system parameters* [see def.], etc.)

4. Identify a method of assigning CSCF tracking and version numbers.

   a. Establish and document in the CMP the controls, procedures, and methods used for version control and configuration backups.

   b. Establish policies and procedures in the CMP for regulating *access* (see def.) to CIs.

   c. Establish policies and procedures in the CMP for error reporting and corrective action.

   d. Establish in the CMP policies and procedures for proper notification before accessing the computer system per conduct of operations.

e. Establish in the CMP the policies and controls for *development resources* (see def.).

f. Develop, document in the CMP, and establish a method for tracking changes of:

- Operational or system parameters
- *Excluded items* (see def.) that may be routinely changed without a CSCF.

g. Establish in the CMP the policies and procedures for notifying the responsible manager of:

- *Operational parameter* (see def.) changes
- Excluded item changes
- New released baselines.

h. Identify baseline documents related to the technical and functional requirements (see def.) of the system requiring control under the CMP or MCP-3572, which should include the CMP itself and other applicable information such as:

- System requirements
- Limitations
- Help files
- Software design information
- User manuals
- System Design Description(s) (SDD; controlled per MCP-3572)

5. Identify a method of configuration status accounting (CSA) in the CMP to provide essential tracking and reporting of CIs and any in-process changes thereto. The primary objectives of CSA are:

a. Maintaining a current list of the operational baseline configuration

b. Tracking individual hardware and software configurations.

6. Provide in the CMP a means to easily track and retrieve status of the CSCFs.

a. Use a change log that collects information for all change requests in one location.

b. Include the status of those changes determined necessary by the system engineer, for example:

- Received but not yet reviewed
- Reviewed
- Approved, denied, or deferred
- Approved but not yet designed
- Designed

- Tested
- Turnover.

7. Document in the CMP an individual or board of individuals identified to make up the core CSCCB.

   NOTE: *Temporary CSCCB members may be added to the core as deemed necessary by the system engineer for the change being made.*

   a. Authorize the CSCCB to review requests to change CIs.

   b. Ensure there is always a representative assigned to the CSCCB from the responsible manager's organization.

   c. Ensure there is a representative assigned to the CSCCB from the Quality organization when the computer system includes any SS, SC and LSC CIs.

8. Document in the CMP an individual authorized to approve, deny, or defer all change requests as determined by the CSCCB. By default this is the system engineer.

   a. Document, as appropriate, specific individuals that are allowed to develop designs, install changes and perform qualification tests.

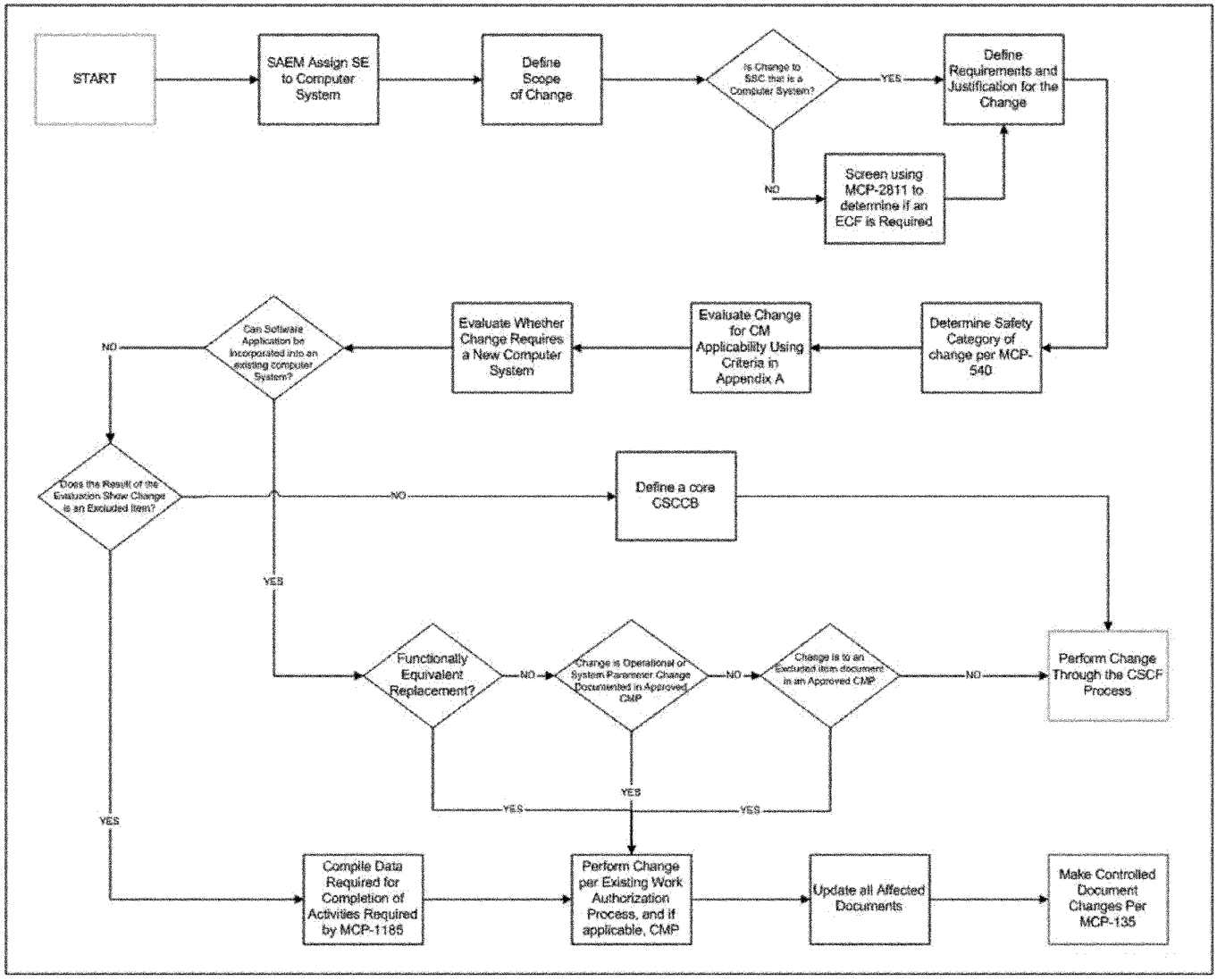
9. Determine record requirements for logs, backups and other documents or electronic files generated by the CMP per MCP-557, "Managing Records."

10. Document and customer specific requirements for retirement of CIs.

11. Approve the plan and enter it as a plan into the Document Management Control System (DMCS).

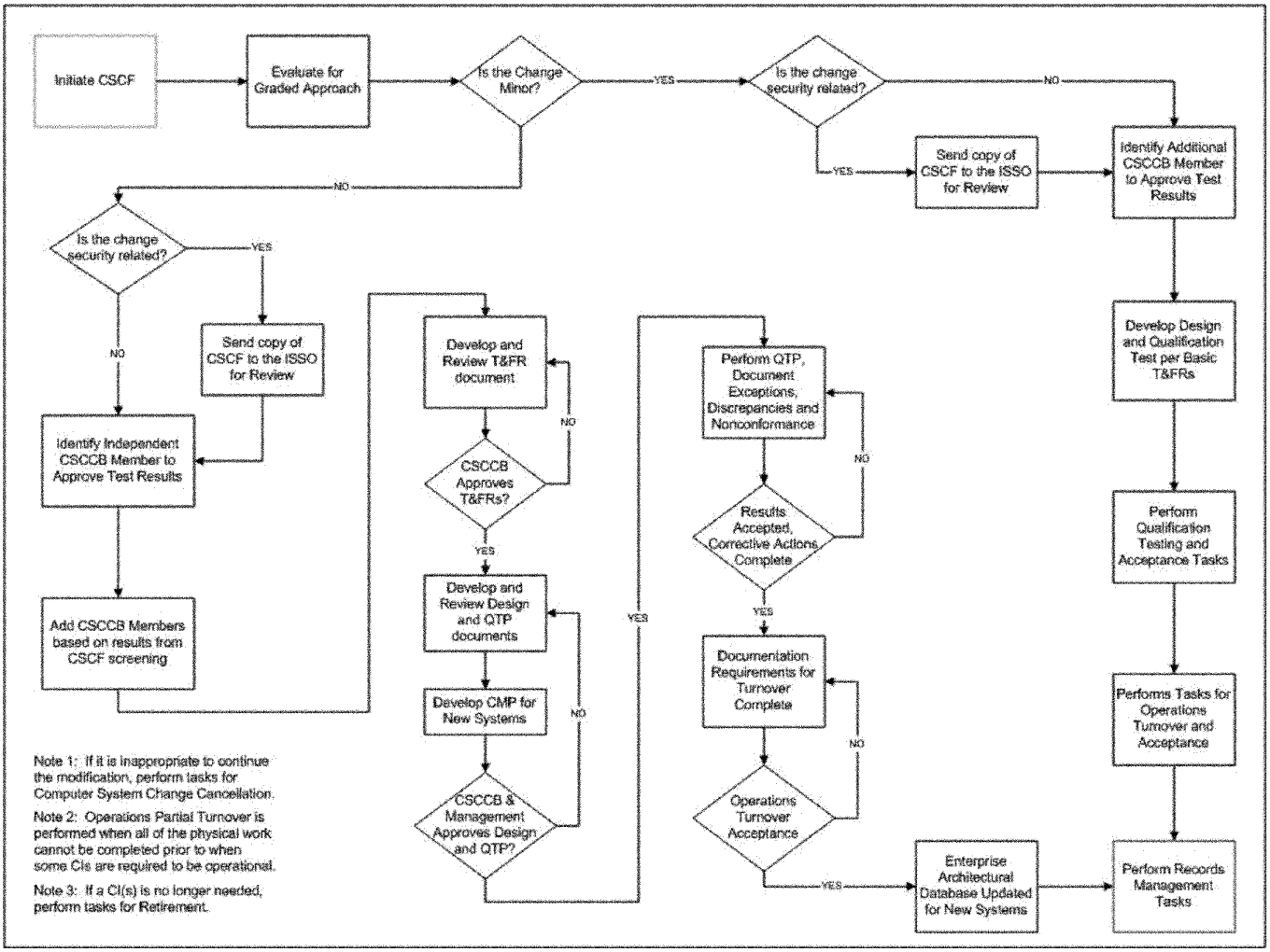
Appendix C

Change Screening



Appendix D

CSCF Process



Appendix E

Qualification Test Procedure (QTP)

This appendix provides the minimum elements that must be addressed. For minor changes only it is allowable to include the test as part of the CSCF form, taking credit for many of these elements that are already covered in the form such as documentation of requirements.

1. Test planning shall include:

    a. Test procedure approvals (except if steps are included on the CSCF form)

    b. description of the test objectives and the hardware and software to be tested

    c. description of requirements to be verified through the qualification test

    d. identification of all data to be recorded, any required independent witnessing or confirmation, and appropriate hold points

    e. required performance acceptance criteria and approach to data evaluation, considering:
    - criteria for establishing test cases, i.e., hand calculations, calculations using comparable proven programs, or information from technical literature
    - software demonstrates required performance over expected range
    - regression testing when modifying existing systems

    f. test instructions and identification of required signoffs to indicate completion of appropriate prerequisites and procedural steps

    g. determination, evaluation, and retesting to address test failures, unacceptable test results, or nonconforming items

    h. review of test data and retest data to verify and document evaluation and acceptance of all test parameters and results.

2. Test Records shall include:

    a. item or work product tested

    b. date of the test

    c. names of tester and data recorders

    d. actions taken in connection with any exceptions, discrepancies or nonconformances noted.

Appendix F

Technical and Functional Requirements (T&FR) Outline

(Reference MCP-3572 "System Design Descriptions," for a complete discussion of each subject. Use this list as a checklist and format outline when developing the T&FR to ensure that each subject is addressed. Omit nonapplicable sections when developing the T&FR.)

1. Introduction
    - 1.1 System Identification
    - 1.2 Limitations of the T&FR
    - 1.3 Ownership of the T&FR
    - 1.4 Definitions/Glossary
    - 1.5 Acronyms
2. Overview
    - 2.1 System Functions
    - 2.2 System Classification
    - 2.3 Operational Overview
3. Requirements and Bases
    - 3.1 General Requirements
        - 3.1.1 System
        - 3.1.2 Subsystem and Major Components
        - 3.1.3 Boundaries and Interfaces
        - 3.1.4 Codes, Standards, and Regulations (including DOE-ID Architectural Engineering Standards)
        - 3.1.5 Operability
    - 3.2 Special Requirements
        - 3.2.1 Radiation and Other Hazards
        - 3.2.2 ALARA
        - 3.2.3 Nuclear Criticality Safety

3.2.4 Industrial Hazards

3.2.5 Operating Environment and Natural Phenomena

3.2.6 Human Interface Requirements

3.2.7 Specific Commitments

3.3 Engineering Design Requirements

3.3.1 Civil and Structural

3.3.2 Mechanical and Materials

3.3.3 Chemical and Process

3.3.4 Electrical Power

3.3.5 Instrumentation and Control

3.3.6 Computer Hardware and Software

3.3.7 Fire Protection

3.4 Testing and Maintenance Requirements

3.4.1 Testability

3.4.2 TSR-Required Surveillances

3.4.3 Non-TSR Inspections and Testing

3.4.4 Maintenance

3.5 Other Requirements

3.5.1 Security and SNM Protection

3.5.2 Special Installation Requirements

3.5.3 Reliability, Availability, and Preferred Failure Modes

3.5.4 Quality Assurance

4. Miscellaneous

Three main topics—Introduction, Overview, and Requirements and Bases—can become the first three sections of a formalized SDD.

Appendix G

Procedure Basis

Step	Basis	Source Document	Citation
4.1, 4.2.6.2	The responsible organization shall designate those activities that require qualification of personnel and the minimum requirements for such personnel.	PRD-5072, 2.2, "Personnel Training and Qualification"	4.1.3.1
General	The design shall be defined, controlled, and verified.	PRD-5074, 3.1 "Design Control"	4.1.1.1
4.7	Design reviews shall be controlled and performed to ensure that: A. The design inputs were correctly selected and incorporated into the design. B. Assumptions necessary to perform the design activity are adequately described, reasonable, and where applicable, are identified as requiring confirmation as the design proceeds. C. Where necessary, the assumptions are identified for subsequent reverifications when the detailed design activities are completed. D. Appropriate design methods and computer programs were used, when applicable. E. The design output is reasonable compared to design inputs. F. The necessary design inputs for interfacing organizations are specified in the design documents or in supporting procedures or instructions. G. Suitable materials, parts, processes, and inspection and testing criteria have been specified.	PRD-5074	4.1.7.1
4.4.7- 4.4.9, 4.8	Test results shall be documented and evaluated by a responsible authority to assure that they satisfy test requirements and conform with acceptance criteria.	PRD-5074	4.1.9.5
General	The software design process shall be documented, approved by the facility design organization, and controlled	PRD-5074	4.1.12.1

Step	Basis	Source Document	Citation
4.4.4, 4.6, 4.7	Test requirements and acceptance criteria shall be provided or approved by the responsible design organization	PRD-5082, 11.1 "Test Control"	4.1.2.1
4.4.4, 4.6	The test procedure or equivalent test planning documentation shall be prepared by the testing organization.	PRD-5082	4.1.3.2
4.4.7-4.4.9, 4.8	Test results shall be documented and their conformance with test requirements and acceptance criteria shall be evaluated by a responsible authority.	PRD-5082	4.1.6
4.4.7-4.4.9, 4.8	Test records shall be established and maintained to indicate the ability of the item to satisfactorily perform its intended function or to meet its documented requirements.	PRD-5082	4.1.7.1
General	Computer software used to produce or manipulate data, which is used directly in the design, analysis, and operation of structures, systems, and components shall comply with the requirements of this PRD. The application of specific requirements shall be prescribed in software quality assurance plan(s) and in written policies and procedures.	PRD-5092, 19.1 "Software Quality Assurance"	4.1.1.1
General	Software development shall proceed in a traceable, planned, and orderly manner.	PRD-5092	4.1.1.2
General	The number of software life cycle phases and relative emphasis placed on each phase of software development will depend on the nature and complexity of the software.	PRD-5092	4.1.1.3
General	The software design process shall be documented, approved by the responsible design organization, and controlled.	PRD-5092	4.1.1.4

Step	Basis	Source Document	Citation
4.4.3-4.4.9, 4.6.4, 4.6.5, 4.8	Software verification and validation activities shall: A. Ensure that the software adequately and correctly performs all intended functions. B. Ensure that the software does not perform any unintended function that either by itself or in combination with other functions can degrade the entire system. C. Be planned and performed for each system configuration which may impact the software.	PRD-5092	4.1.2.1
4.4.3, 4.4.6-4.4.9, 4.6.4, 4.8	Software verification shall be performed during the software development to ensure that the products of a given life-cycle phase fulfill the requirements of the previous phase or phases.	PRD-5092	4.1.2.2
4.4.7-4.4.9, 4.6.4, 4.8	The results of the verification and validation activities shall be documented with the identification of the verifier indicated.	PRD-5092	4.1.2.3
4.4.6-4.4.9, 4.6.4, 4.6, 4.7, 4.8	Software verification methods shall include any one or a combination of design reviews, alternate calculations, and test results performed during computer program development.	PRD-5092	4.1.2.4
4.4.4-4.4.9, 4.6.5, 4.8	The extent of verification and the methods chosen are a function of the following: A. The complexity of the software B. The degree of standardization C. Similarity with previously proved software D. Importance to safety.	PRD-5092	4.1.2.5
4.3.5	Software verification and validation shall be performed by competent individual(s) or group(s) other than those who developed and documented the original design, but who may be from the same organization.	PRD-5092	4.1.2.6
General, Appendix B	Software Planning	PRD-5092	4.1.3
4.3, 4.5	Requirements Phase	PRD-5092	4.1.4
4.4.1-4.4.4, 4.6, 4.7	Design Phase	PRD-5092	4.1.5

Step	Basis	Source Document	Citation
4.4.1-4.4.4, 4.6, 4.7, Appendix B	Implementation Phase	PRD-5092	4.1.6
4.4.4-4.4.9, 4.6.5, 4.8	Testing Phase	PRD-5092	4.1.7
General	Operations and Maintenance Phase	PRD-5092	4.1.8
4.4.6-4.4.11, 4.8, 4.9, 4.10	Installation and Checkout Phase	PRD-5092	4.1.9
4.13	Retirement	PRD-5092	4.1.10
General	Software Configuration Management	PRD-5092	4.1.11
4.8, 4.14, Appendix B	Problem Reporting and Corrective Action	PRD-5092	4.1.12
4.2.6, 4.4.3, 4.6.4	Procurement	PRD-5092	4.1.13
4.14	Software Developed Not Using This PRD	PRD-5092	4.1.14
Appendix B	Access Control	PRD-5092	4.1.15
4.4.13, 4.4.14, 4.11, 4.12	Records	PRD-5092	4.1.16
General	Spent Nuclear Fuels, and NRC-licensed program applications shall comply with all the requirements of DOE/RW-0333P, Supplement I, "Software," in addition to the requirements specified in Section 4.1 of this PRD.	PRD-5092	4.2.1
General	Nuclear facilities shall comply with all the requirements of NQA-1-1997, Subpart 2.7, Quality Assurance Requirements for Computer Software for Nuclear Facility Applications, in addition to the above requirements.	PRD-5092	4.3.1